



National Report of Finland

Executive Summary

This Report highlights the main activities and achievements of the Finnish Hydrographic Office since ARHC Virtual Meeting in November 2021.

- The reorganisation of the Finnish Transport and Communications Agency is completed.
- The first set of nautical charts with new chart production system (AHTI) with the new vertical reference system (BSCD 2000) has published.
- The Bathymetric Data Management System (MERTA) is now fully operational and has been integrated with the AHTI.
- The implementation of the "New vertical chart reference FIN N2000" (~BSCD2000) is ongoing.
- A new nautical publication "Sailing Directions for Finnish Waters".

1 Finnish Hydrographic Office

The Finnish Transport and Communications Agency Traficom organisation was reviewed during 1st half of 2021 and the new management structure has been in force since 15 June 2021.

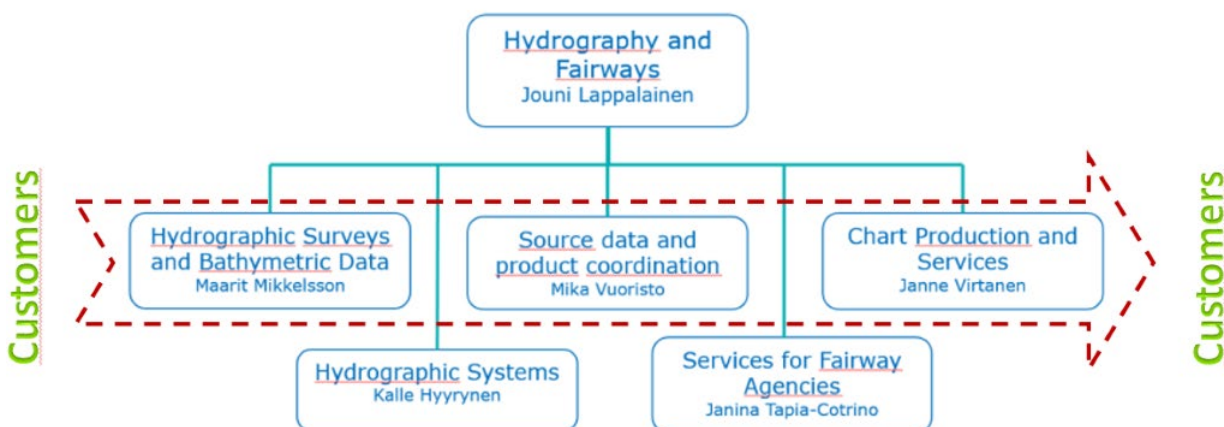


Fig.1. Hydrographic and Fairways unit with underlying teams.



The staff working for hydrography consist 50 specialists and the annual budget for hydrographic activities is about 9 million euros.

2 Hydrographic Surveys

Hydrographic surveys have focused on shallow nearshore sea areas on the Gulf of Finland and in the Archipelago Sea as well as on fairway resurveys in the Bay of Bothnia.

Hydrographic LiDAR surveys have been utilized to replace SBES surveys on a very shallow nearshore waters targeting 100 % coverage on all Finnish waters. This also allows safer operation and navigation when performing multibeam surveys afterwards. This has also proven efficient in relation to vessel survey runlines providing some 20% savings in time. Seasonal environmental conditions have been proven crucial in obtaining LiDAR data.

Fairway resurveys in full are conducted after dredging operations takes place in order to obtain coherent and consistent bathymetric data. Further LiDAR nearshore surveys are planned based on the resources.

Crowd sourced bathymetry is not necessary in Finnish sea areas, however boaters' nearshore findings on shallows are investigated.

3 Nautical Charts

Finland do not publish navigational charts in the Arctic Waters.

Enriching the depth information in ENCs

The approaches to Finnish ports are without exception difficult to navigate because a very shallow waters and a narrow and tight turn fairways. Until now the Finnish ENCs and corresponding printed charts have been populated with standard set of depth contours i.e. 3m, 6m, 10m, 20m, 50m, These conditions cause unwanted effects in vessels ECDIS in the form of continuous and unnecessary anti-grounding alarms.

To eliminate or at least mitigate the problem the Finnish HO have adopted a new rule for depth contour intervals and related depth areas. An additional, 1 meter interval depth contours are applied to areas on and close to important fairways in approach, harbor and berth ENC products.



4 New nautical publications

The new nautical publication "Sailing Directions for Finnish Waters" has been published since December 2021. The publication contains general information about maritime transport and navigation for specific areas i.e. and channel descriptions for major ports in Finnish waters.

Notices to Mariners are distributed via website including a download service (PDF) and Notices to Mariners Online web-service. Clients can filter the Notices by time of publication, area of interests or charts in hand.

The Lists of Lights are published for coastal areas and inland waterways. The Lake Saimaa area is now included as a part of the publication for inland waterways. The List of Lights are available as downloadable PDFs and in addition, information of lights can be search based on ID, area of interest or related chart product.

5 MSI

Finnish Transport and Communications Agency is responsible for safety radio communications in Finnish territorial waters and for distress radio communications in the deep channels of the Saimaa waterways system. Fintraffic Ltd. (government owned company) is operating the national navigational warnings service.

6 C-55

Not Applicable.

7 Capacity building

Nothing to report.

8 Oceanographic activities

The implementation project for "New vertical chart reference N2000" (Baltic Sea Chart datum 2000) is ongoing. BSCD 2000 vertical reference will be introduced on the nautical charts with a new hydrographic chart data management and production system AHTI. The first new charts with new vertical reference were publish in the end of 2021.

The reform will renew Finnish nautical charts in stages over the course of approximately 5–6 years, starting from the Bay of Bothnia and proceeding south. Affecting commercial seafarers in particular, the reform will also concern recreational boaters.

[Chartlink](#) showing the progress of N2000 fairway and nautical chart reform.

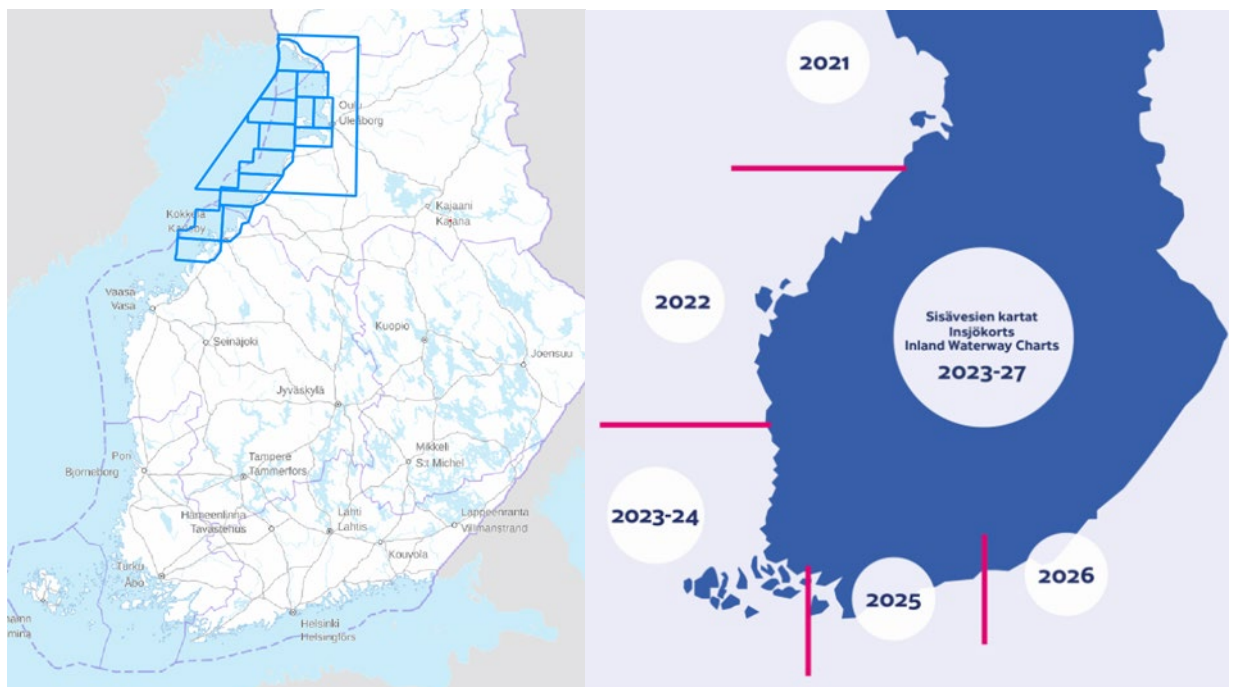


Fig.2. The Finnish N2000 charts coverage (Baltic Sea Chart Datum 2000) as of March 2022 and the schedule for N2000 charts.

9 Spatial Data Infrastructures

National Geodata Portal

The non-navigational use of hydrographic data has increased exceedingly. A viewing service is in use via the interface of National Geodata Portal providing Inspire specific national spatial data sets, for example. The FHO is actively supporting hydrographic data to the National Geodata Portal. The metadata of FHO is also available at the National Geodata Portal.

Open data view and download services:

- Web Map Service
- Web Feature Service
- Tiled map service (WMTS) for viewing FHO nautical chart data in raster format



The data available from these services are not suitable for navigation and does not meet the requirements for an official nautical chart.

Finnish Transport and Communications Agency (The new data viewing and download service) <https://julkinen.traficom.fi/oskari/?lang=en>

National Geodata Portal Paikkatietoikkuna:
<http://www.paikkatietoikkuna.fi/?lang=en>

10. Innovation

Hydrographic survey data processing and management

The improvements to the Bathymetric Data Management System (MERTA) are now completed providing tools for data migration and high level automation for the data maintenance. The MERTA, as March 2022, holds 34 % of all FHO MBES datasets and 21 % of all other datasets (i.a. Single Beam and LiDAR).

Chart data processing and management

ENC and Paper Chart Production System (AHTI) have been taken into full operational use. Nautical chart production system implementation, data migration, system integrations and deployment (2017-2021):

1. System delivery contract signed 9/2017
2. Delivery (Drop 3), data migrations and system integrations accepted 3/2019
3. Partial production start-up (data management) 4/2019
4. Final acceptance of the delivery Q4/2020
5. Full production/first products Q2/2021

The national coordination of the S-100 implementation

Finnish HO within Traficom is taking actions for raising awareness and improving knowledge about S-100 standards among data producers and service providers in Finland.

In order to promote usage of S-100 standards FHO has been contacting Finnish Government Agencies and partners responsible for producing data sets included in the current S-100 implementation roadmap. While Traficom/FHO will produce and provide S-101 ENC, S-102 Bathymetry and S-124 Navigational Warnings data sets the Finnish Meteorological Institute are preparing to produce and deliver Water Level (S-104) and Surface Currents (S-111) datasets. FHO will also contact partners responsible for UKC Management services in case there is need to establish such a service in the Finnish waters.



11. Other activities

FHO has Bilateral Arrangements with UKHO (adoptions of printed Charts), Norway (ENC RENC services), Sweden, Estonia and Germany.

Finland has been a member of the IHO Council and taking part of the HSSC and IRCC meetings.

Finnish experts are actively working in;

- HSSC/NCWG (as Chair)
- HSSC/ENCWG
- HSSC/S-100WG and HSSC/S-101PT
- HSSC/DQWG
- HSSC/NIPWG (as Vice Chair)
- HSSC/TWCWG
- IRCC/WEND-WG (representing BSHC)
- IRCC/MSDIWG
- Baltic Sea Hydrographic Commission including BSHC/BSICCWG (Chair), BSHC-HELCOM/MWG (Chair), BSHC/BSDIWG, BSHC/BS-NSMSDIWG, BSHC/CDWG
- Nordic Hydrographic Commission including NHC/NCPEG, NHC/NSEG
- Arctic Region Hydrographic Commission (as Associate Member) including ARHC/OTWG and ARHC/ARMSDIWG.

Finland is member of the PRIMAR and contribute actively the work of PRIMAR PAC and WGs.

12. Conclusions

This report highlights the general information and main activities (related to Arctic Region) of the Finnish Hydrographic Office since ARHC 11 Conference in November 2021.